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**Comments on the July 29, 2011, Draft Report to the Secretary of Energy,
of the Blue Ribbon Commission on America's Nuclear Future (BRC)**

*Prepared by the Institute for Energy and Environmental Research (IEER) and
presented to the BRC on October 28, 2011 in Minneapolis, MN*

IEER has already prepared extensive comments and made many recommendations to the BRC in a report prepared for the Yakama Nation, which was submitted to the BRC and is already on your website. We trust that you will explicitly address these comments and inform us how you have taken them into account in your final report. The comments I am making today are in addition to the ones you already have; they are on behalf of IEER alone, though there is some overlap on some of the points I am making today and those made in the comments that IEER prepared for the Yakama Nation.

A. Reprocessing

We agree in part with one of the draft report's statements on reprocessing. Specifically we agree that **"no currently available or reasonably foreseeable reactor and fuel cycle technology developments—including advances in reprocess and recycle technologies—have the potential to fundamentally alter the waste management challenge this nation confronts over at least the next several decades, if not longer."**¹ However, this statement falls far short of the technical reality that applies to spent fuel from light water reactors.

IEER president, Dr. Arjun Makhijani made a presentation to the commission on May 25, 2010, at your invitation in which he explicitly demonstrated that reprocessing spent fuel from light water reactors makes no technical, resource, or economic sense whatever path may be chosen for the future of nuclear power. In addition, it will increase security problems, since the plutonium in the spent fuel is far less risky where it is now than if separated from fission products in the spent fuel. We were dismayed to note that this presentation was entirely ignored in the draft report. In brief, the central issue is this: Only a tiny portion of the uranium in the spent fuel can be used in light water reactors. For breeder reactors, the vast stock of depleted uranium is a better, far cheaper, and far larger uranium resource, should such reactors be developed. The BRC should recommend direct disposal of spent fuel from light water reactors without reprocessing independent of any other recommendation in the report. If the BRC rejects this analysis, we would at least like to see the BRC's reasoning. I will be

¹ BRC Draft Report 2011, p. 113, emphasis in the original. (On the Web at http://brc.gov/sites/default/files/documents/brc_draft_report_29jul2011_0.pdf.)

submitting Dr. Makhijani's report on reprocessing for the record to go along with my statement; it will supplement the slides he presented to you.

That said, we do appreciate very much that the draft report excluded reprocessing in the mandate of the new federal institution that would be put in charge of transporting, storing, and disposing of high-level waste and spent fuel. We agree that Nuclear Waste Fund monies should not be used for reprocessing and that reprocessing should be completely outside the mandate of the new institution.

B. New reactor technologies

The BRC has endorsed the DOE nuclear energy roadmap that includes a variety of reactor and reprocessing technologies. There is some discussion of these in the BRC's draft report, notably of fast neutron breeder reactors and high temperature reactors. We appreciate that the BRC included a table with the status of various reactor technologies. But we believe that the endorsement of a research, development, and demonstration program that will last decades and that will likely cost tens of billions of dollars is premature at best. For instance, the BRC has been presented with ample evidence of the uneven performance of sodium-cooled fast neutron reactors in the past. About \$100 billion has been spent worldwide and yet the technology is not commercial. How much more should be spent?

As the draft report acknowledges, the country is confronted with serious budgetary constraints. The R&D path in the DOE roadmap is in our view unaffordable. Even without expensive demonstration reactors, the DOE's nuclear energy R&D budget is about \$500 million per year.² As point of reference, the budget of the National Renewable Energy Laboratory is in the vicinity of \$300 million per year. We recognize that the BRC is not an energy policy commission and is focused on nuclear spent fuel and high-level waste and that it is reviewing nuclear reactors and fuel cycle technologies in that context. But we believe that rather than endorsing the DOE nuclear energy roadmap, the BRC should go into more detail on the potential costs of nuclear reactor and fuel cycle R&D and recommend that a National Academies panel provide the country with a more balanced view of how U.S. energy problems might be addressed given the financial and time requirements for various technologies to contribute to solutions.

C. Hardened On-Site Storage of spent fuel

The safety benefits of hardened on-site storage have already been examined and found to surpass storage of spent fuel in pools by the National Academies.³ We endorse the BRC's recommendation for a follow-up to this study, since a post-Fukushima-accident study is needed. However, there is no prospect that the 2004 conclusion reached by the National Academies of Sciences that dry storage is inherently safer than storage in reactor pools will be reversed in light of Fukushima. On the contrary, Fukushima has made the dangers of at-reactor spent fuel storage much more clear. There is no need to wait or defer for another study before

² BRC Draft Report 2011, p. 121

³ National Research Council, *Safety and Security of Commercial Spent Nuclear Fuel Storage: Public Report*. (Washington, DC: National Academies Press, 2006, at http://www.nap.edu/catalog.php?record_id=11263).

recommending that all spent fuel aged more than 5 years should be moved to hardened dry storage, and the remaining spent fuel should be kept in low-density storage in reactor pools.

In our July 1, 2011, comments on the transportation and storage draft subcommittee report, IEER noted that a consolidated storage site would take a long time to develop. In the meantime reactor communities will be faced with the risk of dense spent fuel pool storage. The only way in which consolidated storage could be developed quickly would be to do it by fiat at a DOE nuclear weapons site. This would be most inadvisable. We believe that the BRC final report should

- Explicitly rule out DOE sites as potential locations of a consolidated storage site.
- Explicitly rule out any DOE role in the consolidated storage siting process
- Recommend Hardened On-Site Storage of spent fuel in dry casks.

An obvious solution is to use Nuclear Waste Fund monies for HOSS, instead of for consolidated storage with transfer of title to the DOE, which would contract with the utilities to store the waste. We understand that utilities are opposed to this and that taxpayers are on the hook for fines because of DOE's defaulting on nuclear waste contracts with nuclear utilities. However these same utilities are beneficiaries of a huge government subsidy in the form of the Price-Anderson Act – whose potential magnitude has been thrown into relief by the enormous and varied types of damage and harm done by the Fukushima accident. This should provide enough leverage to the federal government to negotiate a sensible solution to the problem of storage costs with the utilities without resort to taxpayer dollars.

D. Research and siting

While we do agree with the commission that it is necessary to develop deep geologic disposal, we take issue with the statement that such a siting effort should be initiated expeditiously. Plato reportedly noted that "*Who hastens too much at the beginning, comes to the end too late.*"⁴ Haste has been a central problem with the U.S. repository program and partly as a result, the program is farther behind than ever. IEER has repeatedly recommended ten years of research on various combinations of geologic settings, engineered barriers, and repository sealing approaches *before site selection begins*. We again recommend that at least a decade of science-based research is completed before any consent-based process begins. We urge the BRC to eliminate the term "expeditiously" from its lexicon when it comes to repository development and quote Plato instead of advocating fast development. In our view a decade of careful research and public outreach about the research will provide a sound basis for siting as well as an appropriate starting point for seeking the consent of communities where the geology promises to combine with other elements to produce the most secure and least damaging disposal.

Presented by Christina Mills for IEER
October 28, 2011

⁴ As attributed in the translation of *Festina Lente (Adagia II, 1, 1)*, by Desiderius Erasmus; a hypertext edition by Otto Steinmayer (University of Birmingham, Philological Museum, posted September 12, 2001, at <http://www.philological.bham.ac.uk/speude/text.html>).